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IMPORTANT INSECT OUTBREAKS IN OREGON AND WASHINGTON IN 1963

by

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SUMMARY

Epidemic forest insect outbreaks occurred in 1,311,085 acres of forest land in Oregon and Washington. The locations of the major outbreaks are shown on the accompanying map. During the last decade, the trend of infestations was as follows:

<u>Year</u>	<u>Infested acreage</u>	<u>Year</u>	<u>Infested acreage</u>
1954	7,704,120	1959	1,448,360
1955	2,248,820	1960	1,272,960
1956	1,410,660	1961	1,223,230
1957	2,129,440	1962	1,305,170
1958	2,032,720	1963	1,311,085

Bark beetle outbreaks accounted for the majority of the timber losses. Defoliator damage remained static while the sucking insect damage increased greatly. No control projects are likely to be needed in 1964.

Douglas-fir beetle attacks in windthrown timber ranged from light to heavy. These heavy beetle populations may cause serious tree killing in 1964.

All known infestations of the European pine shoot moth outside the containment zone in northwestern Washington have been eradicated.

Chemical control of bark beetles was limited to a small maintenance project against the mountain pine beetle in lodgepole pine in Crater Lake National Park.

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Summary of 1963 forest insect epidemic infestations in Oregon and Washington

Insects ^{1/}	Oregon		Washington		Regional total	
	Infestation	Area	Infestation	Area	Infestation	Area
	centers		centers		centers	
	<u>Number</u>	<u>Acres</u>	<u>Number</u>	<u>Acres</u>	<u>Number</u>	<u>Acres</u>
Defoliators:						
Spruce budworm	13	49,040	4	10,200	17	59,240
Larch casebearer	0	0	44	37,030	44	37,030
Oak looper	29	16,750	0	0	29	16,750
Knobcone sawfly	8	7,440	0	0	8	7,440
Pandora moth	1	3,800	0	0	1	3,800
Douglas-fir tussock moth	0	0	19	1,515	19	1,515
Unknown sawfly (larch)	3	570	0	0	3	570
Western hemlock looper	6	540	0	0	6	540
Contarinia sp.	2	105	0	0	2	105
All defoliators	62	78,245	67	48,745	129	126,990
Sucking insects:						
Balsam woolly aphid	196	102,145	71	85,310	267	187,455
Unknown mite (Douglas-fir, true firs)	9	31,100	0	0	9	31,100
All sucking insects	205	133,245	71	85,310	276	218,555
Bark beetles:						
Mountain pine beetle (W)	219	67,845	366	410,545	585	478,390
Mountain pine beetle (L)	178	50,220	37	17,620	215	67,840
Mountain pine beetle (P)	262	32,220	11	1,155	273	33,375
Western pine beetle	497	98,395	61	39,275	558	137,670
Douglas-fir beetle	310	24,545	167	60,700	477	85,245
Fir engraver	323	58,280	62	15,865	385	74,145
Silver fir beetle	0	0	46	54,840	46	54,840
Oregon pine ips	190	15,580	14	2,600	204	18,180
Engelmann spruce beetle	33	4,115	47	11,015	80	15,130
Douglas-fir engraver	6	625	3	100	9	725
All bark beetles	2,018	351,825	814	613,715	2,832	965,540
All insects	2,285	563,315	952	747,770	3,237	1,311,085

^{1/} Mountain pine beetle infestations are separated by tree species: W, western white pine; L, lodgepole pine; P, ponderosa pine.

DEFOLIATORS

SPRUCE BUDWORM (*Choristoneura fumiferana* (Clem.))

Hosts this year: Douglas-fir, grand fir, white fir, subalpine fir, western hemlock, and Engelmann spruce.

Current conditions: The only epidemic outbreaks in Oregon this year occurred on the Fremont and Wallowa-Whitman National Forests. In both areas, the defoliation ranged from light to moderate. In Washington, light to moderate defoliation occurred on the Kaniksu National Forest. Infestations recorded in 1962 and 1963 are as follows:

Administrative area	1962		1963	
	Area	Percent	Area	Percent
	Acres		Acres	
<u>Oregon:</u>				
Fremont National Forest	42,060	87	37,040	62.6
Wallowa-Whitman N.F.	6,310	13	12,000	20.2
Oregon areas	48,370	100	49,040	82.8
<u>Washington:</u>				
Kaniksu National Forest	0	0	10,200	17.2
All areas	48,370	100	59,240	100.0

Trend: This year's spruce budworm egg mass evaluation survey showed a downward trend in the 1963-64 budworm generation. Hence, defoliation in all areas should be much lighter in 1964.

Control: No control action is needed in 1964.

WESTERN OAK LOOPER (*Lambdina fiscellaria somniaria* (Hulst))

Hosts this year: Oregon white oak, Oregon ash.

Current conditions: Defoliation near Monmouth, Dallas, Sheridan, Willamina and other widely scattered areas in the Willamette Valley increased considerably in 1963. Disease controlled the insect in some areas but elsewhere the larvae completed their feeding apparently unaffected. Many of the trees refoliated late in the season when larval feeding was completed.

Trend: Undetermined. Presumably upward in the mid-Willamette Valley area and downward in the northern Willamette Valley.

Control: None needed in 1964. Infestations in wood lots, farm-yards, and on shade trees can be controlled by aerial application of DDT or other insecticide, if needed.

LARCH CASEBEARER (Coleophora laricella (Hübner))

Host this year: Western larch

Current conditions: Infestations continued to increase causing light to heavy defoliation over wide areas in northeastern Washington early this summer. Subepidemic populations were found from Idaho westward to Deer Park, Washington. In some areas the trees refoliated after the larvae has pupated.

Trend: Apparently upward.

Control: None needed in 1964. No tree mortality has occurred yet.

SAWFLY (Neodiprion sp.)

Hosts this year: Knobcone pine and ponderosa pine.

Current conditions: Localized outbreaks of an unidentified sawfly occurred on Thorn Mountain near Thorn Prairie, and in the Deer Creek drainage on the Umpqua National Forest in Oregon. Defoliation ranged from light to extreme but no tree mortality has yet occurred. Starvation or disease has caused considerable larval mortality especially in the knobcone pine stands.

Trend: Downward on knobcone pine and static on ponderosa pine.

Control: None needed in 1964.

PANDORA MOTH (Coloradia pandora Blake)

Hosts this year: Lodgepole pine and ponderosa pine.

Current conditions: Second year larvae caused light to heavy epidemic defoliation on the Winema National Forest near Chemult, Oregon. Elsewhere on the Winema National Forest, larvae were common but not abundant. This outbreak on the Winema National Forest is the first time in recent years that the damage has been severe enough to be seen from the air. Subepidemic larval populations continued in an old center of infestation near Sisters, Oregon.

Trend: Undetermined.

Control: Need for control measures will be determined next summer when the adults emerge, mate, and lay eggs.

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata McD.)

Hosts this year: Douglas-fir and true firs.

Current conditions: Infestations ranging in size from a few trees to those occupying several acres were widely distributed in north-eastern Washington. Most were located in farm wood lots or other rather isolated stands. These outbreaks appear to be related to the rather widespread upward cycle in the west this year.

Trend: Undetermined. Presumably static to slightly upward.

Control: Evaluation surveys are now underway. Needs for control will be determined soon.

SAWFLY (Probably Neodiprion sp.)

Host this year: Western larch.

Current conditions: Small outbreaks present on the Wallowa-Whitman National Forest last year expanded considerably in intensity and size. This year's infestations are located in the Goat Creek, Miner Basin Creek, and Big Canyon Creek drainages.

Trend: Undetermined.

Control: None needed in 1964.

LARCH LOOPER (Semiothisa sexmaculata (Pack.))

Host this year: Western larch.

Current conditions: Outbreaks in northeastern Washington near Northport flared up again after a year's absence and caused light defoliation. This outbreak is in the same general area as the one that occurred in 1961.

Trend: Undetermined.

Control: None needed in 1964. Western larch can evidently stand several seasons of defoliation before the damage becomes critical.

PINE NEEDLE FASCICLE MINER (Zelleria haimbachi Busck)

Hosts this year: Ponderosa pine, lodgepole pine, and numerous species of ornamental pines.

Current conditions: Epidemic damage in the older centers of damage near Olympia, Washington, and Ashland, Oregon, subsided completely.

Widespread subepidemic defoliation occurred on forest and ornamental pines in most areas of both States.

Trend: Downward. Parasitism of mature larvae and pupae was high.

Control: None needed in 1964. Control on ornamental pines requires early spring spray schedules.

DOUGLAS-FIR NEEDLE GALL MIDGE (Contarinia sp.)

Host this year: Douglas-fir.

Current conditions: The extensive outbreak that occurred near Sparta, Oregon, on the Wallowa-Whitman National Forest in 1963 subsided without causing any lasting damage to the Douglas-fir stands. Two small spots of new infestation occurred on localized areas on the Umatilla and Wallowa-Whitman National Forests in Oregon.

Trend: Unknown.

Control: None needed in 1964.

WESTERN HEMLOCK LOOPER (Lambdina fiscellaria lugubrosa Hulst)

Host this year: Western hemlock.

Current conditions: About 70,000 acres of mature and immature hemlock in southwestern Washington was sprayed in 1963 to control a serious looper outbreak. A carbamate, Sevin, was used operationally on those lands draining into Willapa Bay. DDT, a chlorinated hydrocarbon, was used on areas draining into the Columbia River. Larval mortality caused by Sevin averaged only 43 percent. This is less than satisfactory mortality. DDT produced excellent larval mortality averaging 98 percent. Careful application of the insecticides prevented damage to fish and wildlife resources.

The extent of the 1963 population and the resultant defoliation has not yet been determined.

Trend: Presumably upward in Washington and static in Oregon.

Control: The need for control in 1964 will be determined when the biological evaluation survey is completed this fall.

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana (Schiff.))

Hosts this year: Mugho and Scotch pines are the preferred hosts. Fifteen species and varieties of pines in ornamental plantings have been attacked in the past.

Current conditions: This year 42 communities outside the containment zone were surveyed in Washington. No new infestations were found outside the containment zone. Within the zone, spread of the infestation has been rapid. New infestations were found in 25 additional communities. Eradication surveys were made in the Spokane Valley in 1961, 1962, and 1963 with negative results. In Oregon, 28 communities were surveyed with negative results. Only eight infested trees were found and destroyed in Portland.

Infestations were found on both ornamental pines and native ponderosa pine in the Okanagan Valley of British Columbia. This important discovery marks the first time the shoot moth has attacked and developed in ponderosa pine within the tree's native range.

Trend: Spread of the infestation through movement of infested nursery stock is only a matter of time.

Control: Procedures and schedules are available for fumigating pine in bundles, as container stock, or as liners in place. This fumigating procedure together with strict enforcement of existing quarantines will slow the spread of the moth.

SUCKING INSECTS

BALSAM WOOLLY APHID (Chermes piceae (Ratz.))

Hosts this year: Pacific silver fir, subalpine fir, and grand fir.

Current conditions: The infested acreage increased considerably in both States. The bulk of this increase occurred in subalpine fir stands on the Mt. Hood, Willamette, Deschutes, and Umpqua National Forests in Oregon and on the Gifford Pinchot and Snoqualmie National Forests in Washington. The aphid has extended its range southward and is now well established in Crater Lake National Park and in the upper Rogue River drainages.

Trend: In Pacific silver fir, the trend is static or slightly upward. Tree killing in subalpine fir will increase in 1964.

Control: Salvage logging is about all that can be done under forest conditions. Colonization and liberation of foreign predators was continued in 1963. Five of the imported species released have become established, but their effectiveness in controlling the aphid populations remains to be evaluated.

UNKNOWN MITE

Host this year: Douglas-fir

Current conditions: Light to heavy damage occurred on Douglas-fir needles on the Wallowa-Whitman National Forest in Oregon. Outbreaks of mites in forested areas have generally occurred following aerial spray operations where the mite's natural enemies have been killed.

Trend: Unknown.

Control: Control is not needed in 1964.

BARK BEETLES

MOUNTAIN PINE BEETLE (Dendroctonus monticolae Hopk.)

Hosts this year: Western white pine, lodgepole pine, and ponderosa pine.

Current conditions: Western white pine: Tree killing decreased slightly on Oregon Forests and increased considerably on Washington Forests. The majority of damage occurred on the Gifford Pinchot, Wenatchee, Mt. Baker, and Snoqualmie National Forests and in Olympic National Park in Washington. In Oregon, mortality was heaviest on the Mt. Hood, Willamette, and Umpqua National Forests.

Lodgepole pine: Mortality in lodgepole pine decreased slightly in Oregon and increased in Washington resulting in a static overall loss. Heaviest losses occurred on the Winema, Fremont, and Deschutes National Forests in Oregon and on the Gifford Pinchot, Colville, and Okanogan National Forests in Washington.

Ponderosa pine: Attacks in young ponderosa pine stands increased considerably in Oregon. Losses were centered on the Wallowa-Whitman, Fremont, and Umatilla National Forests. In Washington, low losses occurred on the Wenatchee, Umatilla, and Colville National Forests.

Trend: The trend is upward in white pine stands. In lodgepole pine and ponderosa pine, the trend is static to downward, with a few local exceptions.

Control: Control is impractical in western white pine in Oregon and Washington. Salvage of infested trees and intermingled green trees is encouraged to reduce beetle populations and salvage timber values. Maintenance control in lodgepole pine stands is scheduled in Crater Lake National Park in 1963 and 1964. Thinning to relieve stand competition and improve tree vigor in stagnated ponderosa pine stands is encouraged in both States.

WESTERN PINE BEETLE (Dendroctonus brevicomis Lec.)

Host this year: Ponderosa pine.

Current conditions: Losses caused by the western pine beetle decreased markedly in extent and intensity. The majority of this year's tree mortality occurred on the Fremont, Malheur, and Winema National Forests in Oregon and on the Yakima Indian Reservation and Glenwood District in Washington. Lighter losses this year are due in part to more favorable moisture conditions in the fall of 1962 and spring of 1963.

Trend: Static to downward in both States.

Control: Increased sanitation-salvage programs are needed on all overmature ponderosa pine stands to reduce beetle populations.

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae Hopk.)

Host this year: Douglas-fir.

Current conditions: The area infested by the Douglas-fir beetle increased slightly in both States. The largest centers of damage occurred on the Wallowa-Whitman National Forest in Oregon and on the Okanogan National Forest and Colville Indian Reservation in Washington.

The Douglas-fir beetle attacks in windfalls resulting from the Columbus Day Storm ranged from light to heavy. Past experience has shown that epidemic beetle populations often develop in wind-thrown timber and emerge to attack surrounding green trees. Broods emerging from this windthrown timber may cause extensive tree killing locally next year or in 1965.

Trend: Static to upward in 1964.

Control: Continued salvage of currently infested trees will help to reduce beetle population and save timber values that would otherwise be lost.

FIR ENGRAVER (Scolytus ventralis Lec.)

Hosts this year: Lowland white fir, subalpine fir, and white fir.

Current conditions: Epidemic outbreaks decreased in extent and severity this year. Most of the recorded damage in mature and immature true fir stands occurred on the Fremont, Wallowa-Whitman, and Umatilla National Forests in Oregon and on the Wenatchee and Okanogan National Forests in Washington. Most of the infestations are in low value stands.

Trend: Probably downward.

Control: None needed in 1964 because moisture conditions have improved.

SILVER FIR BEETLES (Psuedohylesinus spp.)

Host this year: Pacific silver fir.

Current conditions: Epidemic outbreaks occurred on extensive areas of the Mt. Baker and Snoqualmie National Forests in Washington. Lighter damage was found on the Gifford Pinchot National Forest and in Mt. Rainier National Park. Many of the infested trees are also severely infected with Armillaria mellea root rot.

Trend: Presumably upward.

Control: No control other than logging infested trees is needed in 1964.

OREGON PINE IPS (Ips oregonis (Eichh.))

Host this year: Ponderosa pine.

Current conditions: Region-wide damage was less extensive in 1963. Infestations in Washington increased slightly while those in Oregon decreased. The largest and most severe losses occurred on the drier sites on the Malheur and Wallowa-Whitman National Forests in Oregon and on the Yakima Indian Reservation in Washington.

Trend: Downward in both States.

Control: None is needed in 1964 because populations build up and subside rapidly. Good management practices preclude the need for direct control measures.

ENGELMANN SPRUCE BEETLE (Dendroctonus engelmannii Hopk.)

Host this year: Engelmann spruce.

Current conditions: Outbreaks of this beetle increased slightly in Oregon and Washington Forests in 1963 but remained well below the critical levels experienced from 1955-59. This year's damage was centered on the Okanogan and Umatilla National Forests in Washington and the Wallowa-Whitman National Forest in Oregon. Most of the distressed timber is in undeveloped areas; hence, control through logging infected trees is difficult.

Trend: Slightly upward in both States.

Control: None needed. In accessible stands, infested trees should be logged to reduce beetle population.

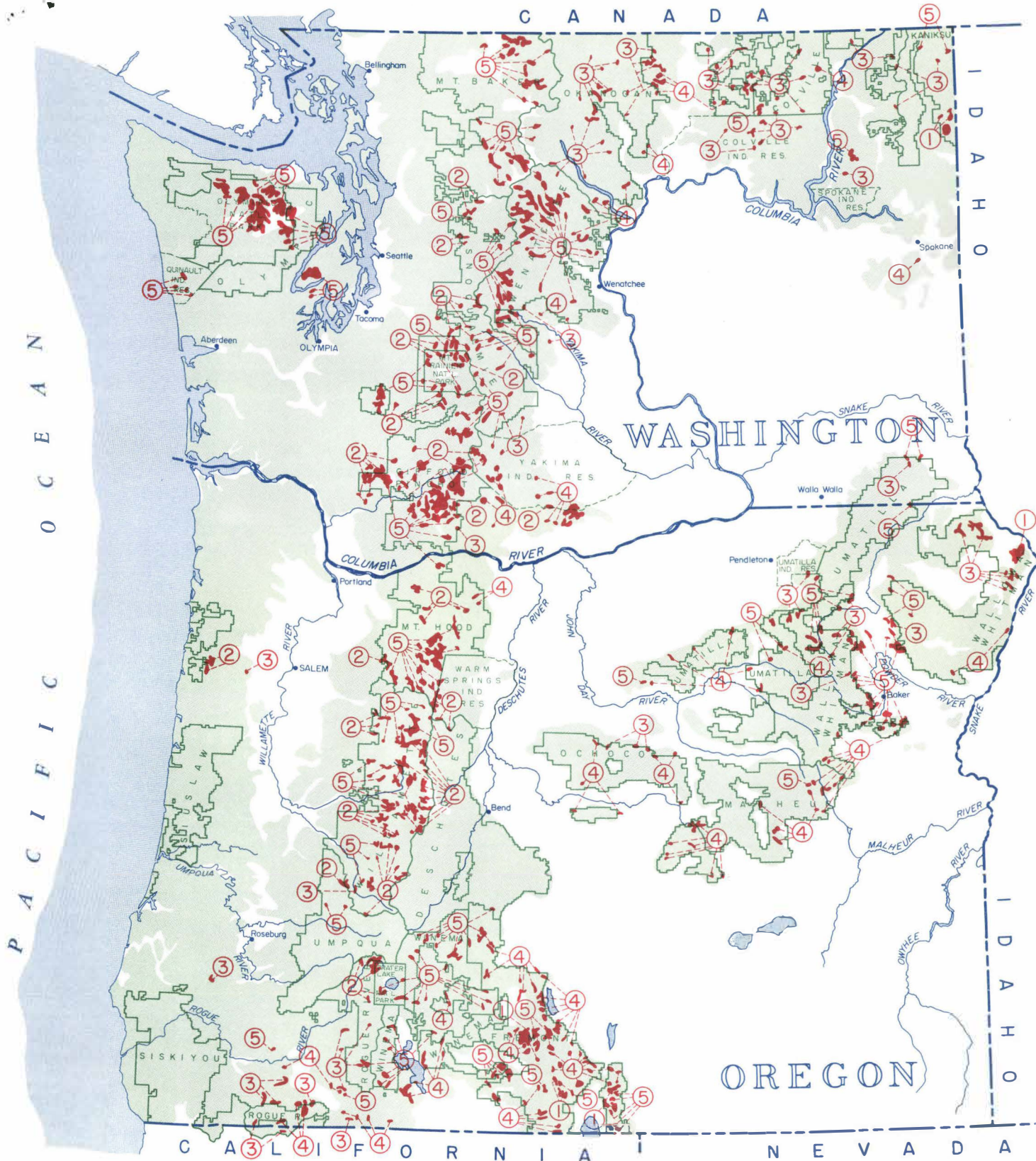
DOUGLAS-FIR ENGRAVER (*Scolytus unispinosus* Lec.)

Host this year: Douglas-fir.

Current conditions: A very few light outbreaks were widely scattered mostly on poor sites in both States. The damage to young Douglas-fir stands was centered on the Wallowa-Whitman National Forest in Oregon.

Trend: Downward.

Control: None needed. Most of the distressed timber is unmerchantable.

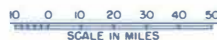


LEGEND

- Forested Areas
- National Forest Boundaries
- Reservation and Park Boundaries



U.S. FOREST SERVICE
PORTLAND, OREGON



MAJOR FOREST INSECT OUTBREAKS 1963

- ① Spruce budworm
- ② Balsam woolly aphid
- ③ Douglas-fir beetle
- ④ Western pine beetle
- ⑤ Mountain pine beetle